**(Printed Pages 01)**

**Roll No. \_\_\_\_\_\_\_\_\_\_\_\_**

**BCA - 3215**

**B.C.A. (III Semester) Examination, Dec.2018**

**COMPUTER SCIENCE**

**Computer Organization and Architecture**

*Time Allowed: Three Hours] [Maximum Marks: 70*

**Note:** Attempt all the questions

**Q. 1. Attempt any six from the following questions: 5x6=30**

1. Draw the logic diagram to implement arithmetic micro operations.
2. Convert the number 12.34 into single and double precision IEEE standards of floating point numbers.
3. Explain about hardwired control design with block diagram.
4. Define the terms: control word, microinstruction and micro program.
5. Convert the expression **A\*B+C\*D** into reverse POLISH notations.
6. Discuss about PUSH and POP operations in a register stack with the help of block diagram and microinstructions.
7. Define and differentiate synchronous and asynchronous data transfer.
8. Discuss about different types of read only memory (ROM).

**Q. 2.** Explain about different types of logic micro operations with the help of logic diagram. **10**

**OR**

Design an arithmetic circuit with one selection input S and two n-bit data inputs A and B. The circuit generates following four arithmetic operations with the input carry Cin. Draw the logic diagram for first two stages:

|  |  |  |
| --- | --- | --- |
| S | Cin | Cin |
| 0 | D=A+B | D=A+1 |
| 1 | D=A-1 | D=A+B’+1(A-B) |

**Q. 3.** Discuss about decoding of micro operation fields with the help of diagram. **10**

**OR**

Compare the hardwired and micro programmed control design.

**Q. 4.** Discuss about the general register organization with the help of block diagram. **10**

**OR**

Write the programs to convert the expression X= (A+B)\*(C+D) into one, two and three address instruction formats.

**Q. 5.** Discuss about Input Output Processor (IOP). Also draw the CPU-IOP communication. **10**

**OR**

What do you know about Cache memory? What are different types of mapping techniques used in Cache memory?